

REMARKS

Prior to discussing the instant office action, Applicant respectfully calls the Examiner's attention to an Information Disclosure Statement that is being filed pursuant to 37 C.F.R. §1.97(d) on even date herewith, but under separate cover. The Information Disclosure Statement is being filed to make of record two references that were cited in an October 28, 2003 office action in connection with a counterpart Korean patent application.

Claims 1-18 are pending in the above-referenced application. Claims 9 and 10 have been withdrawn from consideration in connection with this application pending allowance of claim 1, and the remaining claims are either objected to or rejected in the August 12, 2003 office action.

In response to the August 12, 2003 office action, and in order to address the various claim rejections and objections contained therein, Applicant has amended claims 1, 5, 7, 11, 15 and 17 and has provided explanatory remarks below. Applicant respectfully requests consideration and entry of this response by the Examiner pursuant to 37 C.F.R. §1.116 because these amendments and remarks place the application in condition for allowance, or at least in better condition for appeal. Moreover, Applicant respectfully submits that these amendments and remarks could not have been presented earlier, inasmuch as the amendments and remarks are at least partially in response to a newly cited reference (i.e., U.S. Patent No. 3,640,295 to Peterson), and because the amendments and remarks address certain points raised for the first time by the Examiner in the August 12, 2003 office action.

Claims 1 and 11 are amended herein to more clearly distinguish their subject matter from the various cited references, and claims 5, 7, 15 and 17 are amended herein to more clearly demonstrate that these claims meet the requirements of 37 C.F.R. §1.75. No new matter is added in any of these amendments, support for which is provided, *inter alia*, by reference to Figure 2 of the application, as filed, and/or at page 8, lines 14-19 and page 17, lines 21-25 of the application, as filed.

Applicant notes, for the record, that these amendments are being made solely to expedite allowance of this application. By amending these claims (i.e., claims 1, 5, 7, 11, 15 and 17), Applicant does not acquiesce (a) to their rejection/objection, or (b) to the rejection/objection of any or all claims that depend therefrom, or (c) to the reason(s) offered by the Examiner in support of their rejection/objection. Also, by amending these claims, Applicant does not dedicate the subject matter thereof - as originally filed and/or as previously pending - to the public. Moreover, Applicant respectfully reserves the right to seek patent protection for one or more claims that are similar or identical to these claims - as originally filed and/or as previously pending - in a related application.

Claim Objections

Claims 5, 7, 15 and 17 are objected to pursuant to 37 C.F.R. §1.75(c) as being of improper form for failing to further limit the subject matter of a previous claim. In particular, the Examiner objects to these claims because they allegedly do not any additional structure to claim 1.

According to 37 C.F.R. §1.75(c), "one or more claims may be presented in dependent form, referring back to and to further limiting [sic] another claim or claims in the same application." Each of claims 5, 7, 15 and 17 further limits the claim(s) from which it depends, and thus complies with of 37 C.F.R. §1.75(c), which does not state that a dependent claim must be structurally differentiated from the claim(s) from which it depends. However, solely to expedite allowance of this application, Applicant has amended each of claims 5, 7, 15 and 17 in response to the Examiner's current objections, which are either believed to have been overcome or to have been demonstrated to be inappropriate in view of these amendments and/or remarks.

If the Examiner again maintains the objection to claims 5, 7, 17 and 17 pursuant to 37 C.F.R. §1.75(c), then it is respectfully requested that the Examiner cite authority for his assertion that a dependent claim must be structurally differentiated from the claim(s) from which it depends.

The Rejections Pursuant to 35 U.S.C. §102 and 35 U.S.C. §103

Claims 1-7, 8 and, apparently, 5 are rejected pursuant to 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,890,567 to Caduff ("the Caduff patent"). Claim 6 is rejected pursuant to 35 U.S.C. §103(a) as unpatentable over the Caduff patent in view of U.S. Patent No. 5,399,017 to Droege ("the Droege patent"), and claim 7 is rejected pursuant to 35 U.S.C. §103(a) as unpatentable over the Caduff patent in view of U.S. Patent No. 4,368,054 to Koretsky et al. ("the Koretsky patent"). Claims 1-8 and 11-18 are rejected as unpatentable over Japanese patent publication 9-192618 ("the '618 publication") in view of U.S. Patent No. 3,640,295 to Peterson ("the Peterson patent").

Applicant respectfully traverses these rejections, which are believed to be overcome or demonstrated to be inappropriate in view of at least the amendments and/or remarks presented herein.

As amended, claims 1 recites that the plural ultrasonic vibration units of the ultrasonic cleaning apparatus are arranged in two rows in a widthwise direction orthogonal to the carrying direction. According to the claimed arrangement, at least some of the plural ultrasonic units in one row are displaced in relation to at least some of the plural ultrasonic units in the other row such that a substantially center of at least one ultrasonic vibration unit in one row is aligned (in relation to the carrying direction of the material to be cleaned by the ultrasonic cleaning apparatus) with a space defined between two adjacent ultrasonic units in the other row.

As indicated in the specification of the subject application, such an arrangement is highly advantageous in that it enables the claimed ultrasonic cleaning application to clean one or more materials (e.g., an LCD glass substrate, semiconductor wafer, or the like) with a highly beneficial combination of efficiency, productivity and thoroughness, wherein the material(s) is/are quickly, yet reliably and evenly cleaned by virtue of this arrangement, which is incorporated into the apparatus of claims 1-8 and the method of claims 9 and 10.

No such arrangement is described, depicted or suggested by the ship cleaning device disclosed in the Caduff patent.

The Examiner continues to maintain that "Caduff, when viewed at an angle would reveal a staggered orientation of the transducers." Applicant respectfully disagrees with this assertion, since there does not appear to be any disclosure of suggestion of *any* noticeable pattern of arrangement (let alone the specific pattern of arrangement recited in claim 1) of the four ultrasonic transducers (58) depicted in its Figures 3 and 4 of the Caduff patent.

The only potentially discernable arrangement of any equipment that comprises the robotic ship cleaning ultrasonic apparatus of the Caduff patent appears to involve the fluid spray heads (52), and it appears as though the heads are substantially aligned with each other.

This is in stark contrast to the arrangement of the plural ultrasonic vibration units of claim 1, wherein at least some of the plural ultrasonic units in one row are displaced in relation to at least some of the plural ultrasonic units in the other row such that a substantially center of at least one ultrasonic vibration unit in one row is aligned (in relation to the carrying direction of the material to be cleaned by the ultrasonic cleaning apparatus) with a space defined between two adjacent ultrasonic units in the other row.

In view of at least the amendments and/or remarks above, claim 1 is patentable over the Caduff patent. And wherein claim 1 is allowable, so too are claims 2-10, each of which depends therefrom and which thus includes the features thereof.

If the Examiner again maintains that "Caduff, when viewed at an angle would reveal a staggered orientation of the transducers," then Applicant respectfully requests that the Examiner provide a clear *visual* indication (e.g., a marked-up version of the relevant figure(s) of the Caduff patent) that would support this allegation.

Regarding the Droege patent and the Koretsky patent, assuming - for the sake of argument herein - that either of these references may be properly combined with the Caduff patent, Applicant reiterates that neither the Droege patent nor the Koretsky patent is believed to provide any additional disclosure or suggestion that would support the rejection of claims 6 or 7.

With respect to the rejection of claims 1-8 and 11-18 based on the combination of the '618 publication and the Peterson patent, claim 11 has been amended to recite that the plural ultrasonic vibration units of the ultrasonic cleaning apparatus are arranged in two rows in a widthwise direction orthogonal to the carrying direction. According to the claimed arrangement, at least some of the plural ultrasonic units in one row are displaced in relation to at least some of the plural ultrasonic units in the other row such that at least one end of at least one ultrasonic vibration unit in one row is aligned (in relation to the carrying direction of the material to be cleaned by the ultrasonic cleaning apparatus) with a substantially center of an ultrasonic vibration unit in the other row.

Such an arrangement is patentable over the Examiner's proposed combination of the '618 publication and the Peterson patent.

The Examiner admits that the '618 publication does not disclose "that a plurality of ultrasonic vibration units are arranged in two rows in a widthwise direction orthogonal to the carrying direction, and also so arranged that at least one end of a certain ultrasonic vibration unit of one row is located toward a substantially center on an ultrasonic vibration unit of the other row." However, the Examiner alleges that the Peterson patent describes a sink that includes " a plurality of ultrasonic transducers 16 arranged along its bottom and sides" wherein "the arrangement of the ultrasonic transducers 16, is essentially staggered with respect to one another" in order to "minimize, as much as possible, the amount or degree of cancellation of interfering ultrasonic waves emitted from the various transducers 16."

According to column 3, lines 27-32 of the Peterson patent, "the particular arrangement of the ultrasonic transducers 16, although not critical, should be essentially staggered with respect to one another to minimize as much as possible the amount or degree of cancellation of interfering ultrasonic waves emitted from the various transducers 16." However, based on the depiction and description of the ultrasonic cleaner disclosed in the Peterson patent, there does not appear to be a "carrying direction" for the object being cleaned by the ultrasonic cleaner - that is, the object (i.e., a case that holds various surgical instruments) that is being cleaned by the ultrasonic cleaner does not appear to be carried in any direction in accordance with the cleaning process. Instead, according to the Peterson patent, a case to be cleaned is loaded into a cradle within the ultrasonic cleaner, wherein the cradle is "oscillatable among various angles with respect to ultrasonic transducers mounted within the sink and is movable by appropriate means for producing the desired oscillating action" (see column 2, lines 61-65 of the Peterson patent).

Thus, whereas the arrangements of claim 1 and claim 11 specifically call for (and derive benefits from) at least some of the plural ultrasonic units in one row are displaced in relation to at least some of the plural ultrasonic units in the other row such that – according to claim 1 – a substantially center of at least one ultrasonic vibration unit in one row is aligned in relation to the carrying direction of the material to be cleaned by the ultrasonic cleaning apparatus with a space defined between two adjacent ultrasonic units in the other row and – according to claim 11 – at least one end of at least one ultrasonic vibration unit in one row is aligned in relation to the carrying direction of the material to be cleaned by the ultrasonic cleaning apparatus with a substantially center of an ultrasonic vibration unit in the other row, there is no disclosure or suggestion of such arrangements in the '618 publication and/or the Peterson patent.

For at least this reason, claims 1 and 11 are patentable over the Examiner's combination of the '618 publication and the Peterson patent. And wherein claims 1 and 11 are allowable, so too are claims 2-8 and 12-18, each of which depends therefrom and which thus includes the features thereof.

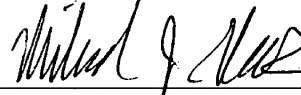
In view of at least the amendments and/or remarks set forth above, the objection to claims 5, 7, 15 and 17 have been overcome or demonstrated to be inappropriate, as have been the rejections of claims 1-8 and 11-18. Therefore, reconsideration and allowance of claims 1-8 and 11-18 are respectfully requested. Also, because claim 1 is allowable, so too are claims 9 and 10, as acknowledged by the Examiner at paragraph 1 of page 2 of the August 12, 2003 office action.

If the undersigned can be of any assistance in advancing the prosecution of this case, the Examiner is invited to contact him through the information given below.

Respectfully submitted,

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